

Emerging Problems with Particulate Matter in Sunland Park

**Joint Advisory Committee Meeting
Las Cruces, NM**

April 24, 2002

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New Mexico Environment Department**



High PM10 Episodes in Sunland Park

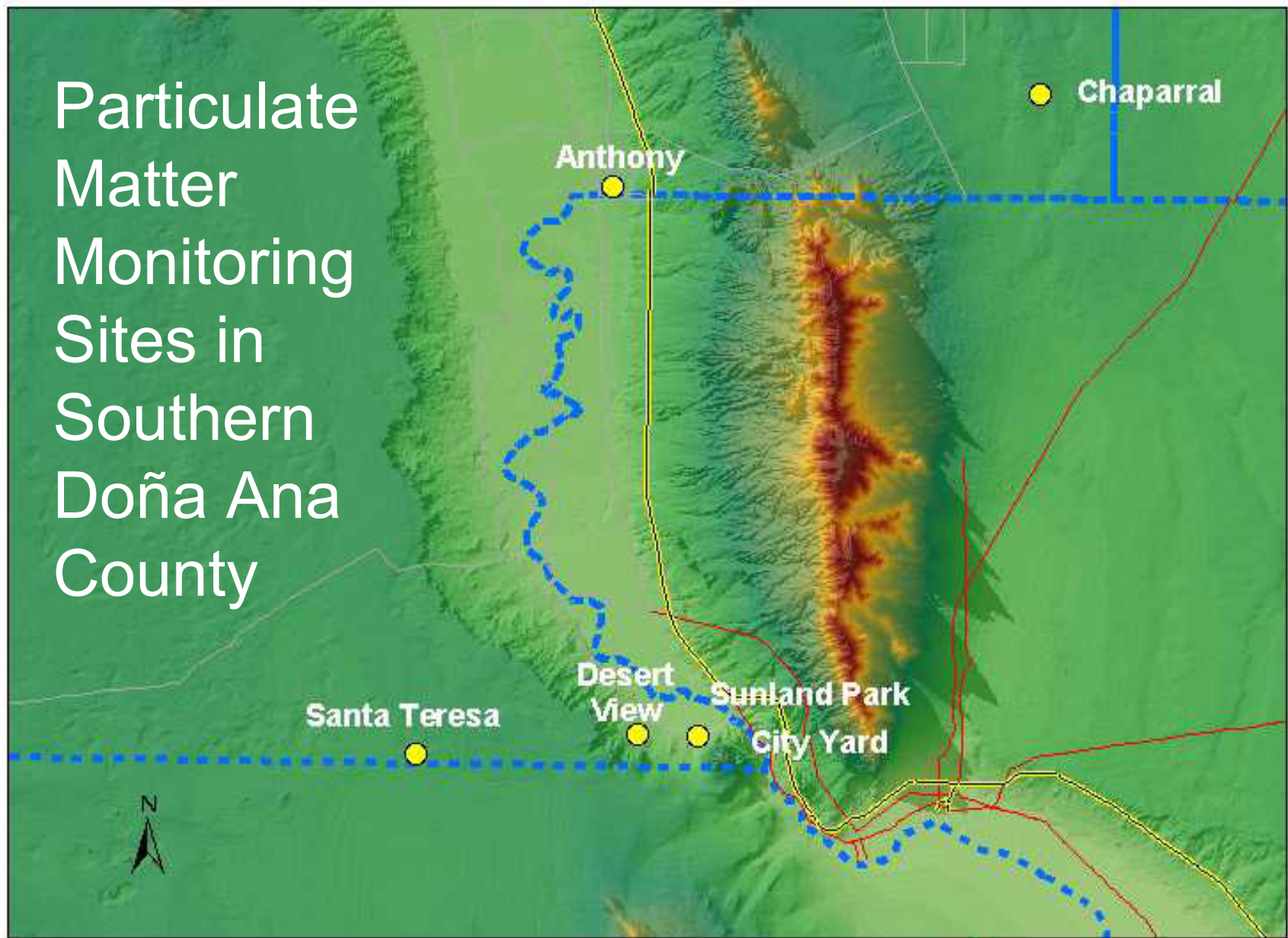
Continuing problem: Dust storms (high wind)

- About 5-15 exceedances of federal 24-hr standard per year (with TEOM)
- Required measures in place
- US EPA excludes as Natural Events
- State/local Natural Events Action Plan in effect since December 2000

EMERGING PROBLEM: Low wind exceedances

- During evening inversions
- Number of exceedances is increasing

Particulate Matter Monitoring Sites in Southern Doña Ana County



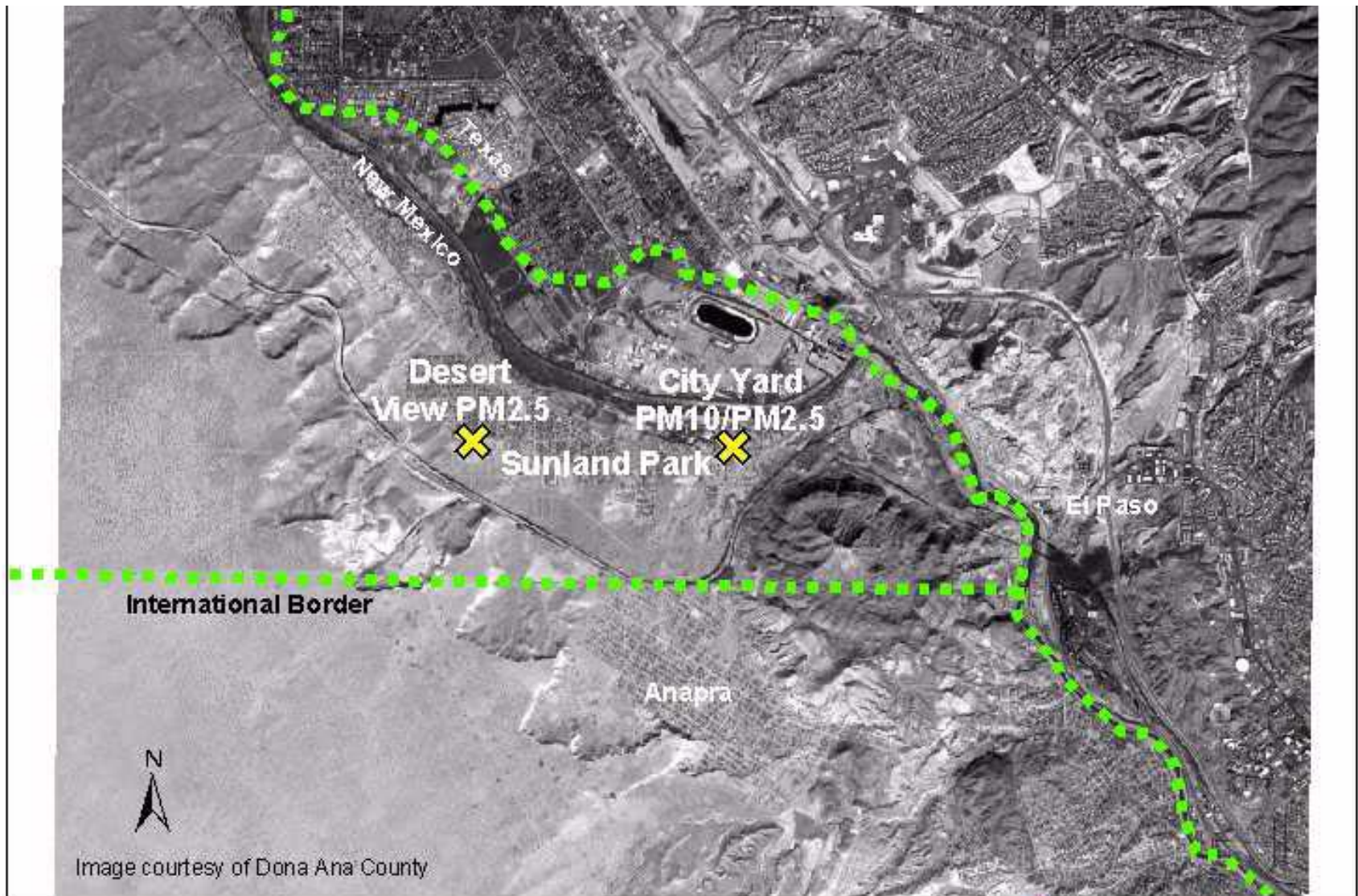
0 1 2 4 Miles

0 2 4 8 Kilometers



NMED
Air Quality Bureau

Sunland Park PM10 and PM2.5 Monitoring Sites



0 1 2 4 Kilometers



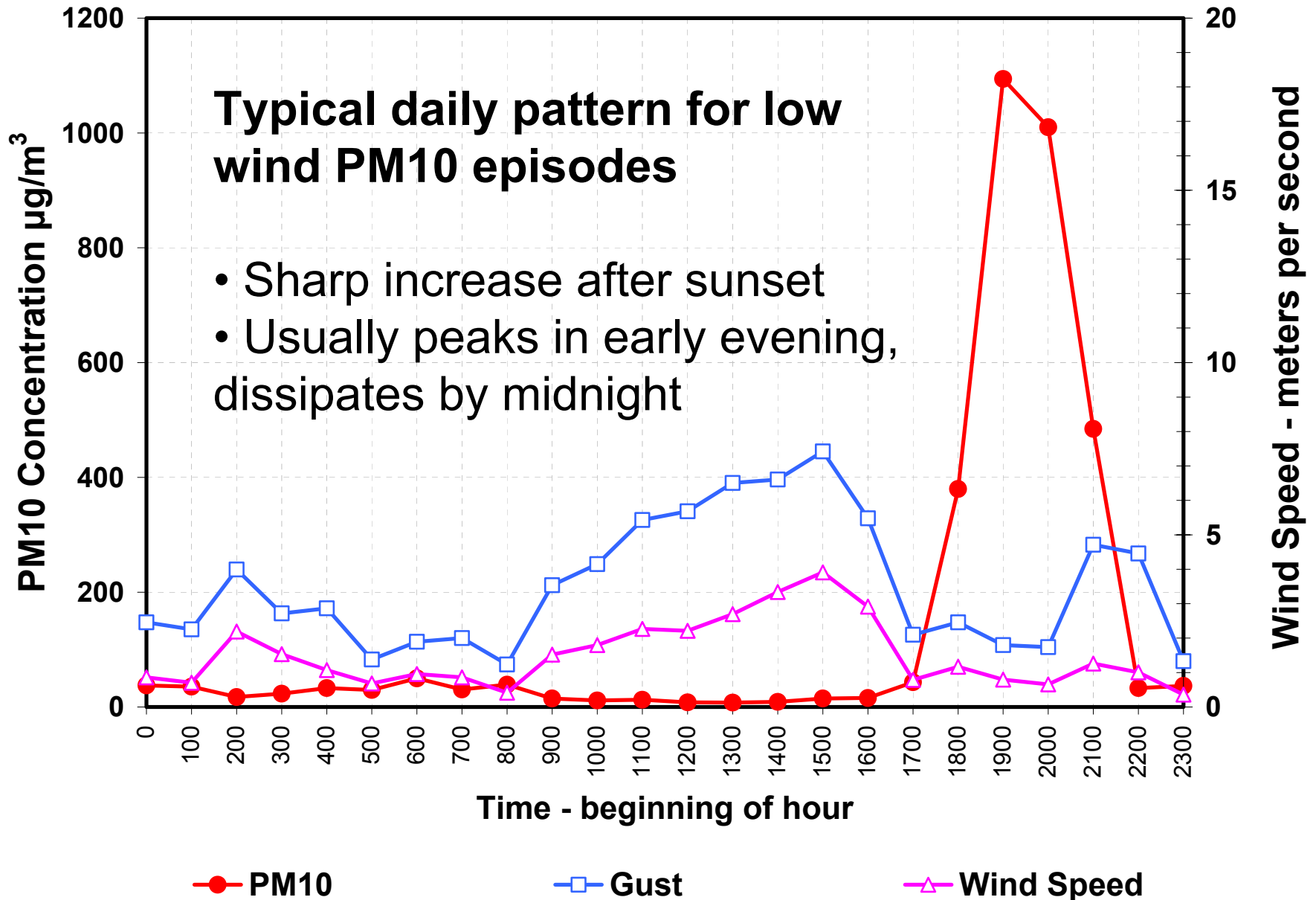
NMED
Air Quality Bureau

Sunland Park City Yard

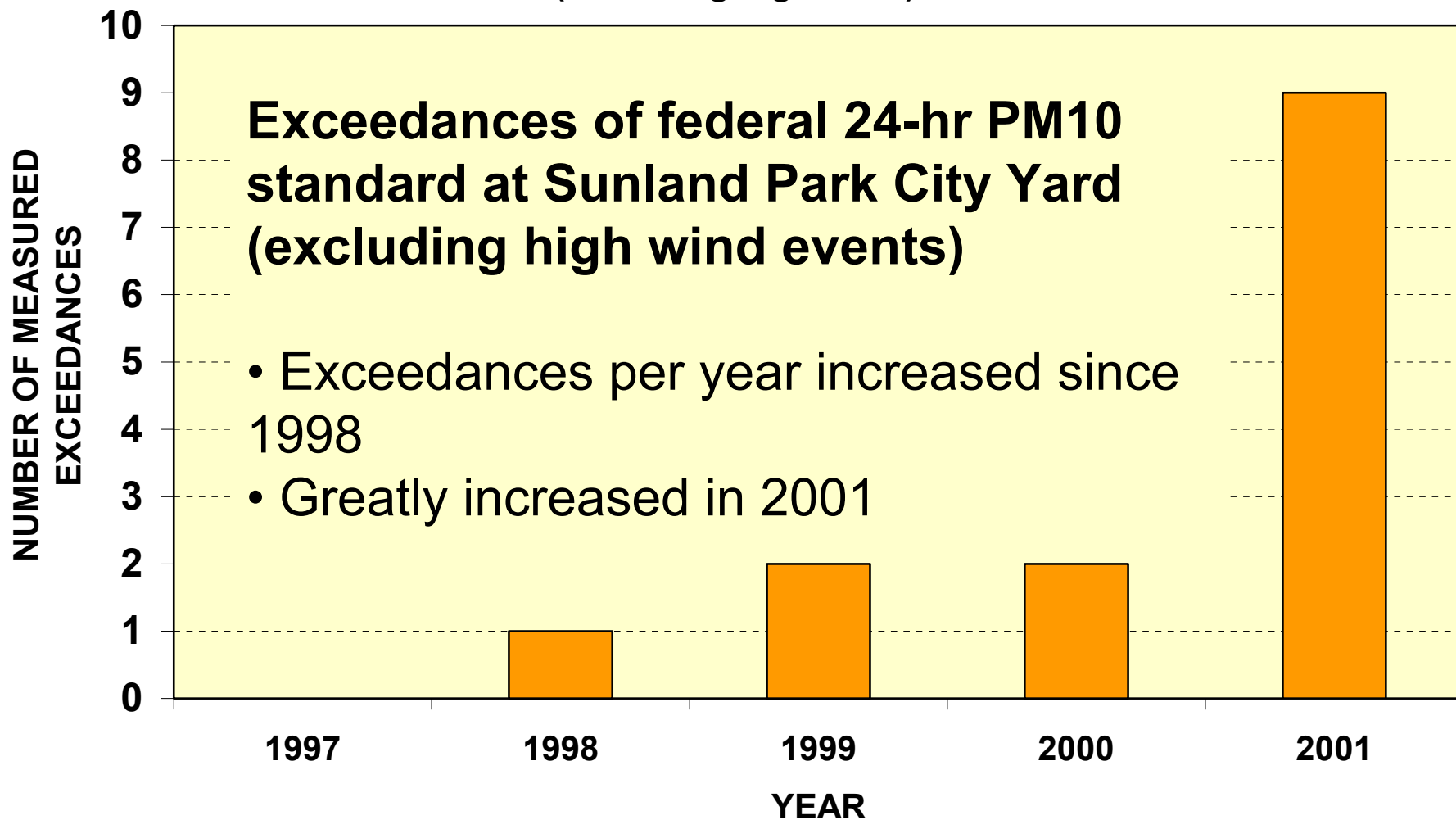
October 21, 2001

Typical daily pattern for low wind PM10 episodes

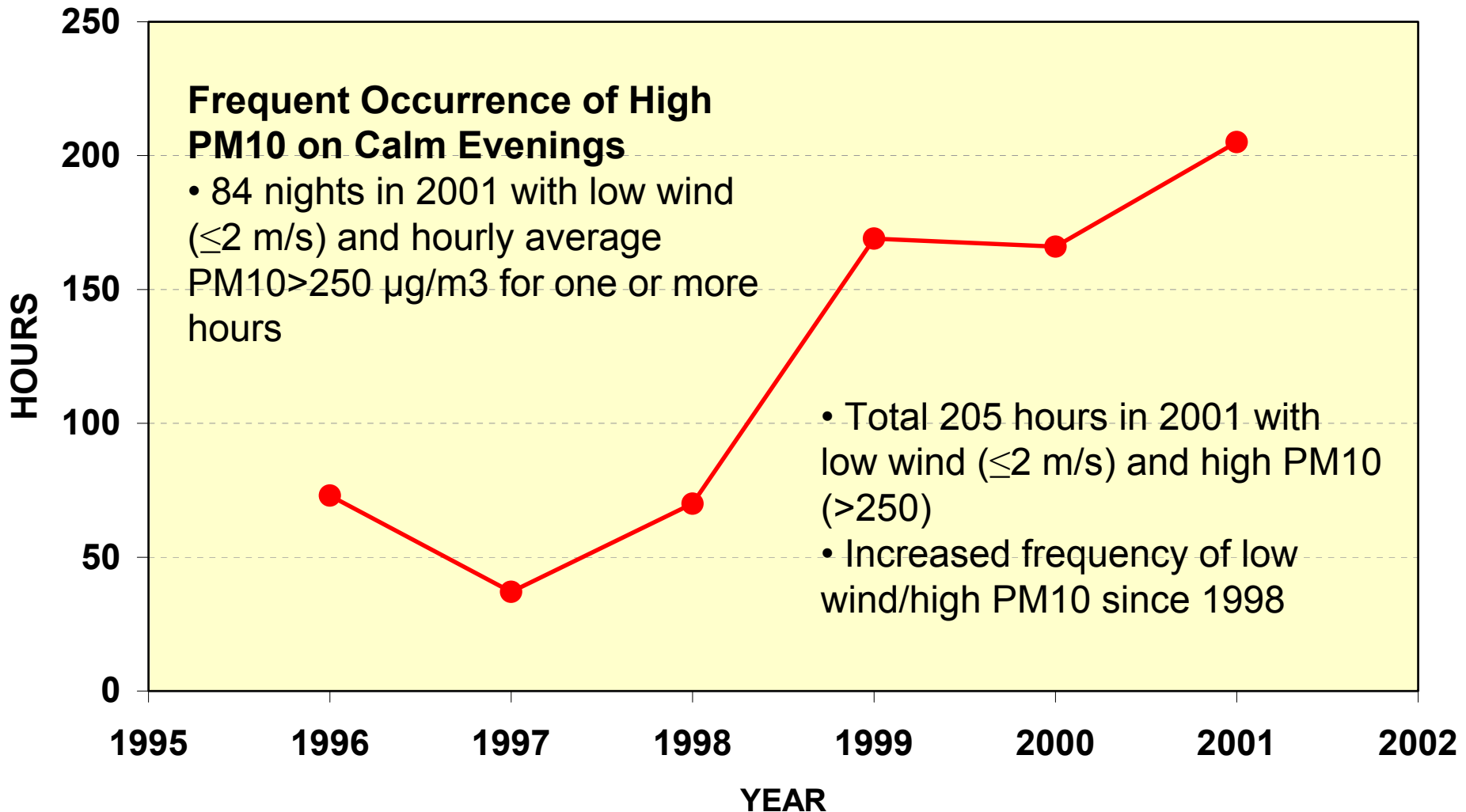
- Sharp increase after sunset
- Usually peaks in early evening, dissipates by midnight



Sunland Park City Yards PM10
Exceedances of the 24-hr National Ambient Air Quality Standard
(excluding high wind)



Sunland Park City Yards
Hours Per Year with High PM10 ($>250 \mu\text{g}/\text{m}^3$) and Low Wind ($<2 \text{ m/s}$)

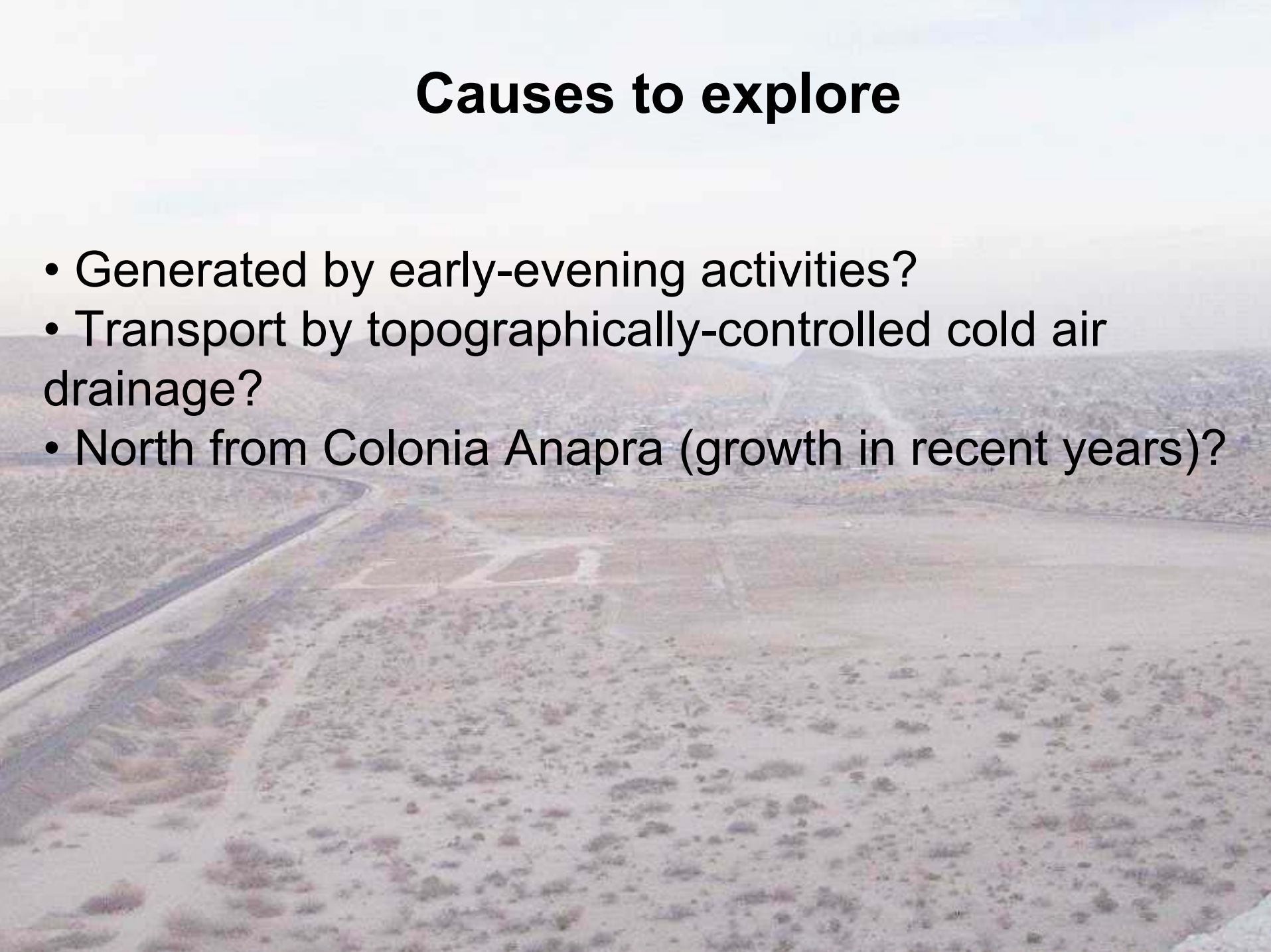


Other tentative findings

- PM_{2.5}/PM₁₀ ratio ≈ 0.20 suggests particles are mostly dust, with some smoke/soot
- Desert View site (3 km west) may be much less affected by these episodes (based on PM_{2.5} data)
- Anthony site has recorded a few low-wind PM₁₀ exceedances (with TEOM)
- No low-wind exceedances with Federal Reference Method (FRM) monitors (FRM values average about 2/3 of TEOM Equivalent Method)

Causes to explore

- Generated by early-evening activities?
- Transport by topographically-controlled cold air drainage?
- North from Colonia Anapra (growth in recent years)?



Causes to explore

South from up-valley sources?



Dirt Roads

Open Burning



Proposed New Mexico Environment Department Activities (pending funding)

- Increased PM monitoring
- County-wide PM emissions inventory
- Modeling of transport, including cold-air drainage
- Collaborative university research (speciated analysis, other projects)
- Public information
- Health studies

Addressing the Problem

New Mexico petitions the JAC to:

- Place the low-wind PM10 exceedance evaluation on the strategic priority list
- Work with NMED Air Quality Bureau to evaluate the problem
- Form working group to develop a proposal for PM controls, for presentation to the Border Environment Cooperation Commission (BECC) for their endorsement and submission to the North American Development Bank (NADBank) for funding

For more information: www.nmenv.state.nm.us, "Air Quality Bureau"